

“FISHING NA EVERYBODY BUSINESS”: WOMEN’S WORK AND GENDER RELATIONS IN SIERRA LEONE’S FISHERIES

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ABSTRACT

While small-scale fisheries in many developing countries is “everybody’s business,” a gendered labor division concentrates production in the hands of fishermen while women dominate postharvest processing and retailing. The production bias of fisheries management programs has not only largely overlooked the role of fisherwomen, but also marginalized “fish mammies” in terms of resources and training. This study draws on three in-country fisheries surveys, as well as interviews and focus groups, and employs a gender-aware sustainable livelihood framework to make visible the economic space occupied by women in Sierra Leone’s small-scale fisheries. The study highlights how women’s variegated access to capital and resources interacts with social norms and reproductive work and argues for more social and economic investment in women’s fish processing and reproductive work enabling them to reconcile both roles more effectively.

KEYWORDS

Fisheries, gender relations, Sierra Leone, women and development, poverty

JEL Codes: Q22, B54

INTRODUCTION

Fisheries are in crisis globally, with one of the foremost international authorities on marine fisheries, Daniel Pauly, suggesting the oceans have been the victims of a giant Ponzi scheme that has placed “not just the future of the fishing industry at stake, but also the continued health of the world’s largest ecosystem” (2009:2). Prospects for recuperation look bleak, particularly for those developing countries where fish provide a substantive contribution to daily protein intake (Andy Thorpe 2005). Moreover, climate change is likely to exacerbate the situation of fisheries, – with Edward H. Allison et al. (2009) noting that millions of people could face unprecedented hardship as coral reefs are bleached, lakes dry up, and the rising sea level push salt water into freshwater fish habitats. These changes are likely to have a severe impact upon fisherwomen in the developing world – as ecosystem degradation reduces the marine resources that underpin the livelihoods of many women (Lorena Aguilar 2008), while their risk-coping capabilities are constrained by gender inequities and biased institutions.

Yet, research into capture fisheries has “long been weak on a gender perspective” (S.B. Williams 2008: 148), despite more than 57 million women worldwide directly deriving an income from the sector (Andy Thorpe et al. 2010). There is no global gender-asset gap assessment of fishing capital to parallel that undertaken by Carmen Diana Deere and Cheryl R. Doss (2006) with regard to land tenure, for example, although national artisanal fleet ownership data could be partly disaggregated by gender in a number of developing countries. Similarly no

one has sought to examine male–female differences in technical efficiency and labor productivity in the fisheries sector like Agnes R. Quisumbing (1996) did for agriculture. However, gender inequities in the fisheries sector do not just manifest themselves in asset or earnings gaps. Gendered identity, roles, and relationships within the labor market and the household (and community) affect asset accumulation, innovation, marketing opportunities, social capital, and social norms. A more dynamic view is therefore necessary to reveal these interactions and to understand the full complexity of gendered relations within the fisheries sector.

This study examines women’s work, gender relations, and fisheries in the developing world to reveal their variegated access to and control over capital and resources. A case study of Sierra Leone’s small-scale artisanal fisheries provides insights into gendered labor divisions that exist within the sector and the household and shows how gendered social norms further impact income and access to resources. This study seeks to connect thinking on gender roles and relations within the fisheries sector to the spectre of climate change. We argue for more social and economic investments in women’s fish processing and reproductive work, so as to enable them to reconcile both roles more effectively.

FISHERIES LIVELIHOODS FROM A GENDER PERSPECTIVE

The livelihoods literature has drawn attention to the way an individual or household's access and control over five capital assets (physical, human, social, financial, and natural) influences sustainable livelihood (SL) pathways and outcomes (Department for International Development [DFID] 1999). Diversification is viewed within the livelihoods framework as a key strategy the poor employ to cope with risk and decrease vulnerability. Such risk-coping strategies, however, are likely to trap households in poverty as consumption smoothing is prioritized above profitable investments (Chris Elbers, Jan Willem Gunning, and Bill Kinsey 2007; Chris Elbers, Jan Willem Gunning, and Lei Pan 2008). Moreover, the situation is further complicated, as gendered social norms were not systematically incorporated in the SL approach, although this oversight has been remedied recently (Olasunbo Odebode 2004; Lee-Ann Small 2007).

Since intra-household gender inequalities (of the material and nonmaterial kind) lead to different bargaining positions and strategies, the gender-aware SL framework, as proposed by Odebode (2004) in regard to low-income urban Yoruba women in Ibadan, Nigeria, is particularly useful as it “enables a focus on the lives of women, both within and outside the households as well as within the peculiar socio-economic and cultural context in which they live” (x). This intrahousehold inequality leads to different bargaining positions and strategies and result in gendered divisions of labor, consumption, investment, and opportunities (Martha Alter Chen 1989; Naila Kabeer 1990). Because of gender inequalities in multiple dimensions, women's scope for investment is constrained, thus leading to disempowering activities and outcomes. The differentiated distribution of assets and other resources between women and men, correlating with gender roles and responsibilities (in and outside the household) and social norms, translates

into different responses to risks and vulnerabilities (Odebode 2004; United Nations [UN] 2009; Rebecca Holmes and Nicola Jones 2011).

Not surprisingly, we find women respond by diversifying, instead of specializing, their labor. Because of their multiple household and community roles, women tend to opt for combining paid and unpaid work. Such gendered differences are also characteristic of other rural sectors (see Nicky Pouw [2008] with regard to rural agriculture in Uganda; Holmes and Jones [2011] with regard to rural economies in general).

Women, fishing incomes, and the feminization of poverty

The heterogeneity of women's involvement in fisheries is striking. In Melanesia women dominate in reef finfishing (Mecki Kronen and Aliti Vunisea, 2009), while Indian women net prawns, Laotian women fish in rivers and canals, and Filipino women fish from canoes in coastal waters (Krishen Rana and Violeta Perez-Corral 2001). Women are also active gleaners of bivalves, crustaceans and seaweed (Ruth Busch 1987). In West African fisheries, Elizabeth Bennett et al. (2004) observe that while women rarely fish, they are often involved in hauling beach seines, particularly in Ghana. However, women's activity in the artisanal fisheries sector is most evident in the postharvest sector. Here women predominate, whether at the processing or retail distribution level. In India, for example, 73.6 percent of those involved in distribution are women (Somy Kuriakose and J. Jayasankar, 2007) while Nireka Weeratunge and Katherine Snyder (2009) acknowledge that women dominate local fish markets in much of Africa.

This heterogeneity, allied to women's multiple household and community roles and the seasonality of fishing, means there are considerable variations in the time they devote to (and hence the income or nutritional benefit derived from) fishing and related activities. Charlotte Wrigley-Asante (2008), for example, notes that Ghanaian women undertake a variety of income-generating activities, with fish processors in Dangme West resorting to trading household wares once the season ends. To date, however, the literature quantifying returns from these livelihood activities is extremely sparse (Andy Thorpe, Neil Andrew, and Edward Hugh Allison [2007]). In the African context, Chantal Gnimadi (2004) found that women involved in shrimp and mud-crab processing and trading in Benin spent 70 percent of their remunerated time in (and derived 53 percent of their household income from) such activities, while Randall Brummett et al. (2010) notes that in southern Cameroon women spent between 8.5–17 percent of their time on fishing (which generated 8.5–22 percent of their incomes).

While Barbara Walker and Louise Endemaño (2001) and Edward H. Allison (2003) describe how Ghanaian and Ugandan women have used the surpluses generated from trading fish to enhance their livelihoods and lever themselves out of poverty by investing in boats and gear, this is not an option for all. Much as male-centric supply chains embody participants with differing income streams and wealth endowments, in West Africa hierarchical female-centric postharvest supply chains obscure a wide variation in women's income and social status, variations that affect an individual's ability to both access fish and to generate surpluses. The Sustainable Fisheries Livelihood Project (SFLP; 2006), for example, notes how younger, poorer women were only able to access poor quality fish and lacked the ice or marketing expertise to benefit from trading in higher-priced fresh fish in Benin, Niger, and the Gambia. In a similar vein, Ragnhild Overå (2005) documented how differential access to economic and social capital

among women traders in Moree, Ghana, allowed a small group of entrepreneurial women to monopolize by-catch capture and thus find a new niche in the local-global interface, while others were not as fortunate.

However, estimating fisherwomen's poverty is complicated by three factors. First, these women lead multifaceted lives. Many deploy coping strategies such as labor substitution toward or away from the sector depending upon intra- or extra-sectoral income-generating opportunities across, and within, years. The second factor is the extent to which economic activity (fisheries and non-fisheries) occurs outside the market economy. Susan Zann and Leon Zann (2008), for example, report that fishers in Dravo, Fiji consumed most of the fish they caught, while Heather Craig (2004) and Christophe Béné and Sonja Merten (2008) document how women traders may engage in nonmarket sexual relationships with fishermen in order to secure their fish supply. Third, disentangling women's and household poverty is no easy task and is invariably predicated upon assumptions about intrahousehold resource distribution (Gillian Hart 1995; Shahra Razavi 1999). Yet such disentangling is imperative for alleviating poverty, given that 90 percent of fisherwomen's incomes is reinvested into the family, compared to just 35 percent of men's incomes (WorldFish Center n. d.).

Gender relations and resource access

The first Food and Agriculture Organization (FAO) workshop on Women in Aquaculture was quick to note that women were noticeably absent in aquacultural policymaking and planning at the national level – despite being the dominant gender in such projects in a number of the countries represented (Colin Nash, Carole Ruth Engle, and Donatella Crosetti 1987). Twenty

years later, Poh Sze Choo, Barbara S. Nowak, Kyoko Kusakabe, and Meryl J. Williams (2008:178) bemoaned the fact that “women often lack decision-making power in community resources management including fisheries management and this deprives women of access to resources in water bodies,” while Simon Heck, Christophe Béné, and Roberto Reyes-Gaskin (2007) affirm that African women’s participation in resource management is “limited.”

Yet, access to resources and women’s participation are often linked. A good example is the introduction of new licensing regulations on Lakes George and Edward in Uganda in 2002. As these regulations decreed that women should receive 20 percent of all new licenses, newly licensed women were consulted on management of the lakes, which led to the emergence of more gender-sensitive plans (Fiona Nunan and Jim Scullion 2004). In the case of fisherwomen in El Tamarindo, El Salvador, however, it is not access to natural capital that precludes women, but the lack of financial and physical capital (along with time constraints) that condemn women to fish in the estuarine waters where resources are scarcer and more contaminated due to pesticide runoff and siltation (Sarah 2004).

Human capital limitations, not just the well-publicized gender differentials in literacy, but also the fact that historically “fisheries and aquaculture development assistance and technical training” was targeted at men (Choo et al. 2008: 178) further militated against opening up decision making processes, and led the World Bank (2009) to propose four gender-sensitive development investments.¹ Social capital considerations should also not be neglected. Kyoko Kusakabe et al. (2004), for example, point out that women dominate the fish retail trade around Tonle Sap, Cambodia. However, as the individual quantities sold are small, and they have fewer connections with government officials, women are rendered largely invisible and hence more vulnerable in a chain that functions to “strengthen present gender inequality by maintaining the

social/gender relations of the actors involved”(99–100). As a consequence, limited and constrained access to capital of all kinds strengthens rigid labor divisions and thus ensures reduced livelihood opportunities.

Women are concentrated in postharvest fish processing. This gendered specialization marginalizes women in conventional production-centric fisheries policymaking. As a result, as Choo et al. (2008) note, assistance to the sector traditionally targeted men. This bias translates into deficiencies in the “livelihood capitals” of women active in the sector and constrains their opportunities to build SL strategies. It is also clear from the above review that there are few detailed case studies of women’s actual work in the sector, or the key problems they face, and a lack of empirical research into the design of effective gender-sensitive livelihood interventions.

RESEARCH METHODOLOGY AND DATASETS

We applied a mixed methodology to collect both quantitative and qualitative data, using large-scale surveys, interviews, and focus group discussions. The data employed come from three sources. First, the National Frame Surveys conducted by the Ministry of Fisheries and Marine Resources (MFMR; 2003–08) and analyzed by the Institute of Marine Biology and Oceanography (IMBO) at the University of Sierra Leone. These provide information on all vessels employed in the country's small-scale, artisanal fisheries (their size, mode of propulsion, ownership) across the country's three fishing regions (North, West, and South).ⁱⁱ

Second, a small-scale survey directed specifically at women fish-processers undertaken by the Institute of Marine Biology and Oceanography of the University of Sierra Leone under the British Council Development Partnerships in Higher Education project (hereafter IMBO/DelPHE). The project's research assistant, who has had extensive experience working with Sierra Leonean women's groups, completed a short questionnaire on behalf of 100 respondents drawn from the three fishing regions during 2008–09. Twenty representative respondents were interviewed on each of four main beaches in Shenge (South), Konakridee (North), and Goderich and Tombo (West - near Freetown, the capital). In addition, twenty representative respondents at each site from the smaller fishing beaches near Freetown (Portee, Rukupa, Old Wharf, Moa Wharf, and Magazine Wharf) were interviewed. Subsequent focus-group meetings at each of the four major landing sites and a national symposium on gender equity in the sector, held in Freetown on 19 June 2009, supplemented the information obtained via the questionnaires.

The third data source is the 2010 World Bank survey of fishing communities in Sierra Leone. Five questionnaires were used to obtain more detailed information on household composition, structure, and asset ownership across a representative sample of fishing and non-fishing households, with three of the questionnaires providing more specific information on the activities and incomes of those active as fishers, processors, or transporters.ⁱⁱⁱ The primary data available in the latter two surveys (IMBO/DelpHE and World Bank) was analyzed using SPSS. Unfortunately, earlier national data on fisheries was lost after the MFMR offices, which also housed IMBO, at Kissy dockyard were burnt down in 1999 during the Sierra Leone Civil War (1991–2002).

WOMEN AND THE FISHERIES SECTOR IN SIERRA LEONE

The brutal, decade long, civil war saw Sierra Leone sink to the bottom of the UN Human Development Index (HDI). While a combination of international aid, governance reforms, and, an uneasy peace have prompted a degree of postwar stability (Derek Poate et al. 2008; Andy Thorpe et al. 2009; Christof P. Kurz 2010), development indicators have shown minimal improvement and the country ranks 125th (out of 138) on the Gender Inequality Index of the United Nations Development Programme [UNDP] 2010).

The war made many women the sole breadwinner within their households, as men were conscripted, murdered, or fled. Others became de facto heads of household after the conflict, when their husbands and partners rejected them due to the sexual violation they had endured or their collaboration with rebel forces during the conflict (Sierra Leone Truth and Reconciliation Commission 2009). Fisherwomen were particularly affected due to fleet relocation (Thorpe et al. 2009). Occupational and geographic migration was often necessary strategy for survival. Some moved inland to farm rice, cassava, and potatoes, while others marketed charcoal or firewood. Older women moved into the center of town to beg, while some younger fisherwomen relocated from the Eastern wharf of Freetown to engage in prostitution on the Western beaches (DelpHE 2009).

In 2002, the peacetime commitment to enhance the socioeconomic status of those, particularly women, in the fisheries sector promised much but has delivered little (National Fisheries Policy 2003; Poverty Reduction Strategy Paper PRSP; 2005). An influx of aid monies from, among others, the African Development Bank (2002–8, US\$6.7 million) and the European Union (2007–11, US\$3.9 million and US\$3.1 million) was oriented to improve fisheries

management, reconstruct landing sites, survey the status of coastal fish stocks, and improve production and trading capacity (EU 2008). While the latter is of particular relevance to fisherwomen, given their predominance in the postharvest sector, there is however a real paucity of documentary evidence on their roles and their incomes.

Women's involvement in Sierra Leone's fisheries sector

Tradition and cultural taboos play an important part in shaping gender relations and division of labor within the fisheries sector (Modesta Medard et al, 2002; Irene Odotei, 2003; Patricia Tuara Demmke, 2006; John Kurien, 2001). This is certainly the case in Sierra Leone where our field research uncovered a variety of local beliefs. While the shaking of hands with a man on his way to fish invokes bad luck, saying goodbye to a partner as he goes to sea could result in him never returning safely, and women being unable to enter the wharf at Konakriddie port without first covering their head have few implications for the sectoral division of labor, other taboos and traditions are more prescriptive. The taboo that prevents menstruating women from stepping into a fishing boat, or the traditional belief in some Islamic communities in Sierra Leone that view fish as dropping like rain from the sky and forbid women from making first contact with them helps to institutionalize a rigid gender division of labor that serves to filter women into the postharvest sector. Gender norms are thus not only legitimated, but also reinforced through a combination of shared fishing beliefs and male interest in preserving such norms (Irene van Staveren and Olasunbo Odebode 2007).

While local taboos prevent women putting to sea, women do fish using scoop net and traps in the inland waters and the fish captured from these operations is an important source of protein

for the majority of rural farm families (Andy Thorpe 2005). As in other West African countries, women also participate in hauling in beach seines along Lumley, Levuma, and other beaches. Gleaning and “cabbing” (the picking up of discarded fish on the wharf at the major landing sites), is also in evidence though the latter is very much a livelihood strategy of the ultra-poor.

As is the case elsewhere in Africa, the majority of Sierra Leonean fisher women are to be found in the postharvest arena. The National Frame Surveys (MFMR/IMBO 2003) suggest women account for around 75 percent of postharvest workers, while the more recent World Bank survey (2010) suggests that 85.5 percent of fish processors are women. In contrast, women account for just 4.6 percent of those who named fishing as their principal economic activity (Table 1).

Table 1 Women’s and men’s principal economic activity in fisher families in Sierra Leone

<i>Principal Economic Activity</i>	<i>Number of women</i>	<i>Number of men</i>	<i>Women as a percentage of total involved in the activity</i>
Fish processing	1,300	220	85.5
Fishing	85	1,766	4.6
Fish transporting	62	35	66
Total	1,447	2,021	41.7

Source: World Bank 2010.

This fairly rigid gendered division of labor is immediately apparent on the beach itself. While women are almost exclusively involved in purchasing the fish at the shoreline, women, men, and children carry the purchased fish to nearby sites where women process the fish. The fish is either sold locally or for distribution further inland. Some women may specialize in just one part of this postharvest fish chain. Others may control the whole chain.

As gender norms make women primarily responsible for food provisioning and household chores, they work close to or inside the home where they can combine income earning with reproductive work. In contrast, the use of group processing sites and formal processing sites are more the exception than the rule though they are more common at some of the smaller landing sites such as Portee Wharf, and also in evidence at the larger landing sites (such as Goderich, Tombo, Katta, and Shenge) - .

Table 2 Fish processing undertaken by women: Location (n=1,300)

<i>Where did you process the fish?</i>	<i>Number</i>	<i>Percentage</i>
At my home	1,014	78.0
At a group processing site	142	10.9
At a formal fish processing site where facilities have been constructed	32	2.5
At an informal location on the beach that most processors use	1	0.1
Missing information	111	8.5
<i>Total</i>	1,300	100

Source: World Bank 2010.

It is clear that this gendered division of labor is also strongly rooted in intrafamilial relations. The World Bank survey (2010) found that the majority of fish acquired by female fish processors was obtained either at no cost or through payment to family members, and in only around one in five instances did the processor source their raw material from outside the family network (Table 3). Contractual processing was of peripheral significance.

Table 3 Fish processing undertaken by women: Source of fish processed

<i>Did you buy the fish you processed?</i>	<i>Number</i>	<i>Percentage</i>
No, I got them free from family members	580	50.3
Yes, I bought them from people in my family	322	27.9
Yes, I bought them from people outside my family	237	20.5
No, I got them for free from other people who pay me to process them	15	1.3
<i>Total</i>	1,154	100

Source: World Bank 2010.

Unfortunately the survey fails to shed light on the income-pooling arrangements that underpin the fish acquisition process at the familial level (Émile Vercrujse 1983). However, focus group meetings conducted during the IMBO/DelpHE project disclosed that fresh fish was the male partner's or relative's in-kind contribution to the household.^{iv} In some instances fish was provided free, the woman selling the catch to cover household expenses. In other instances, woman received fish at an agreed price and paid over this price to their partner or relative after the sale, retaining the profits made for the household. In some cases fish was supplied under a combination of these arrangements. These findings concord with the work of Akua Britwum (2009) in Ghana who found that, historically, fishermen supplied their wives with fresh fish to process for sale, with the women retaining between 15-30 percent of the proceeds for the household. Britwum (2009) notes that this relationship has become much more formalised with fishermen recording both the market price and the quantities supplied to their spouse and demanding full payment at the end of the season.

The more pertinent feature is the embedded power relationship: The man regulates the supply and dictates the terms of exchange to the woman processor, indirectly exerting control over the extent to which their partner can generate revenue. Women without partners (or male

relatives who fish) are further disempowered and may need to accede to demands for sex in order to acquire fish (Modesta Medard 2012).^v

The forward supply chain is also dominated by kin networks, the World Bank (2010) showing that while 46.7 percent of the 1,156 women responding were solely responsible for transporting the fish from the beach for processing, an additional 44.2 percent relied on other family members, usually men. Processors used nonfamily subcontractors in just 117 cases.

The feminization of poverty in artisanal fisheries

In Sierra Leone there are significant differences in the time women devote to fishing and related activities. In fishing communities, processing as an occupation dominates (almost 90 percent), with very few women (6 percent) active in harvesting (see Table 1). Almost one-half of the women in fisher families are also involved in other, non-fishing related, activities for their sustenance.

The principal alternative activities are small-scale farming (500 respondents, mostly cassava farming - 234 respondents), which links to their role as food providers, and running a small business (209 respondents, mostly petty trading - 140 respondents), although income from employment as a nurse and the “initiation” of girls (one respondent apiece) were also reported. In Shenge (the most geographically isolated of the major fishing villages in Sierra Leone) postharvesting processing and the sale of fisheries products was the principal occupation of all those interviewed in the IMBO/DelpHE survey. Elsewhere, petty trading was the main occupation for 10 percent of the IMBO/DelpHE survey, most particularly in the small fishing sites around Freetown, while in Goderich three of the twenty respondents used fisheries-derived

incomes to supplement their primary work as seamstresses (at the smaller Porttee wharf one of the women reported working in the commercial sex trade as her main occupation).

Table 4a Average income earned (in Sierra Leone leones) from fishing and non-fishing activities by women and men in fisher families

<i>Principal fishing activity</i>	<i>Mean income from fishing activity last month</i>		<i>Mean income from non-fishing activities last month</i>		<i>Mean Total Income last month</i>	
	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>
Fish processing	287,359** (41,060)	637,096** (206,591)	395,848 (115,319)	544,204 (354,095)	461,646*** (74,856)	848,466*** (255,755)
Fishing	8,162 (7,891)	12,515 (9,276)	1,741 (1,663)	4,294 (3,494)	8,599 (8,307)	13,769 (9,249)
Fish transporting	242*** (122)	4,872*** (2,471)	1,459* (469)	34,943* (21,739)	880*** (294)	21,706*** (10,933)

Notes: Standard errors are indicated in parentheses. Total mean incomes are calculated inclusive of instances where zero-incomes are reported in the activity. Significant differences between women's and men's income are flagged and tested by independent samples t-test, with ***, **, and * indicating 0.5, 1, and 5 percent levels respectively.

Source: World Bank 2010.

Table 4b Median income earned (in Sierra Leone leones) from fishing and non-fishing activities by women and men in fisher families

<i>Principal fishing activity</i>	<i>Median income from fishing activity last month</i>		<i>Median income from non-fishing activities last month</i>		<i>Median Total Income last month</i>	
	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>
Fish processing	100,000	160,000	30,000	45,000	100,000	180,000

Fishing	200	200	47.5	60	200	230
Fish transporting	98	142.5	100	58	100	200

Source: World Bank 2010.

The World Bank data provides some illuminating insights into both the absolute incomes accruing to women in fisher households, and the extent of their reliance upon incomes emanating from the fishery sector itself (Tables 4a and 4b). 1,179 of the 1,300 women processors reported earning some form of income by processing fish over the year (money and/or in-kind), with considerably fewer reporting fishing/gleaning (85 respondents), or fish transporting as their main mode of employ within the sector. Among women processors incomes varied considerably – from 20 leones (at the time of the survey US\$1 = 4,500 leones) up to a claimed 20 million leones [see Figures 1 and 2]. However, less than 2 percent earned more than 1 million leones, with the mean processing income being 287,359 leones (Table 4a).

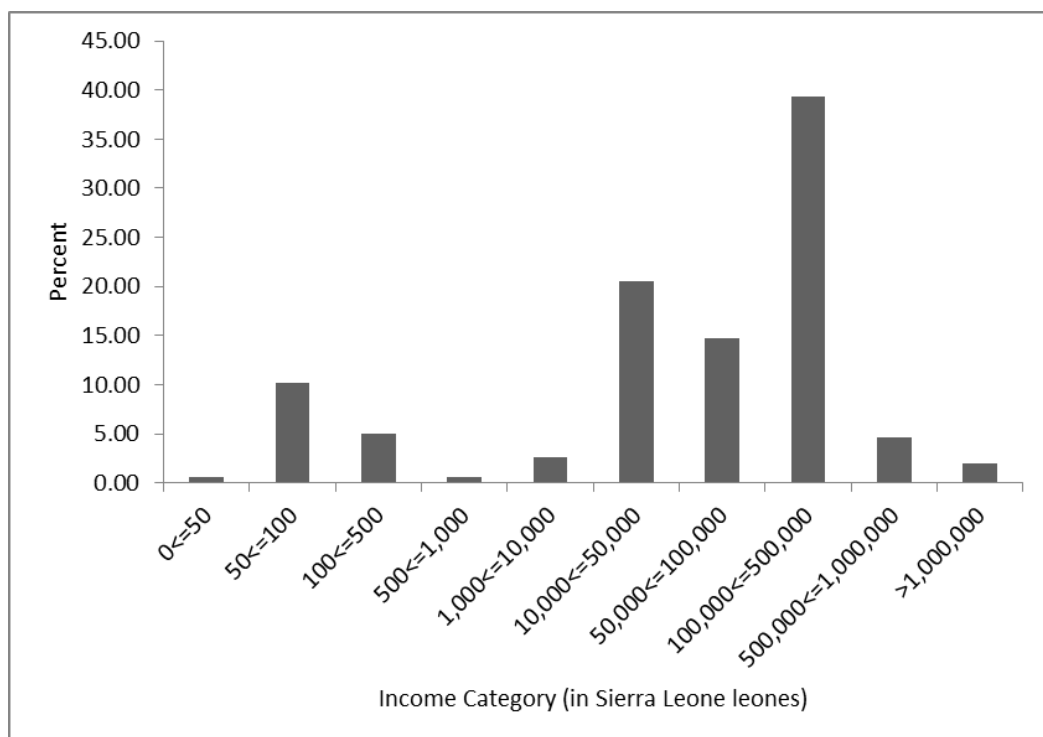


Figure 1 Income earned by women from fish processing

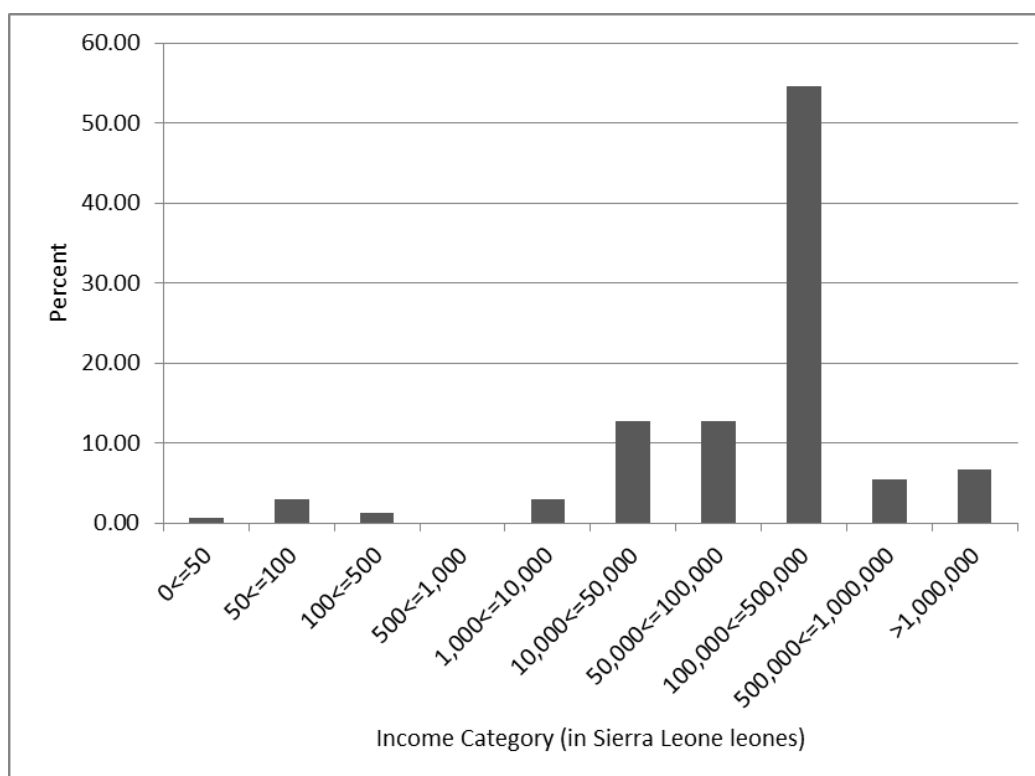


Figure 2 Income earned by men from fish processing

Note: The fourth category ($500 \leq 1,000$) for men processors is 0 and therefore not included in this graph.

The majority of women processors earn around 100,000 leones a month (median income), somewhat less than their male counterparts. Noticeably, almost half these processors (460 respondents) rely exclusively upon processing for their income. In the case of those who undertook multiple activities, fish processing provided (on average) 55 percent of their income. As mean income from non-fishing activities exceed the mean income derived from fishing activities, we surmise that processing income alone is insufficient to meet household maintenance requirements. Reported incomes for the women earning a living from either fishing/gleaning or transporting fish was much lower (8,162 leones in the case of fisher/gleaners – even less for transporters), with both these groups reporting broadly similar absolute levels of income derived from activities outside the sector (Table 4a). Cabbage is reported under the “fishing” heading, and it seems these two latter occupations (fishing and transporting) are the sectors where women’s poverty is concentrated.

Rather intriguingly, these figures are in sharp contrast to those relating to men’s involvement and incomes within the sector. 1,766 men reported their primary livelihood activity as fishing, with statistically significantly fewer active in processing or transporting fish (Table 1). Furthermore there was much less evidence of livelihood diversification, with fishing providing the sole income source for two-thirds of the respondents in this group. Furthermore, earnings outside the sector for the 574 respondents who held two or more occupations were on average barely one-third the level reported from fishing (Table 4a). These mean incomes were also much lower than those reported by women processors (12,515 leones against 287,359 leones), although this is largely explained by the subsistence nature of the artisanal fishery (with

part of the catch destined for home consumption rather than market channels) and the partial sharing of product and income at the household level. As noted earlier, just over half the women processors do not pay for the fish acquired, and the monies realized through the subsequent sale of the product is invested directly in household expenditures rather than being returned to the fisher, thus biasing revealed fishing incomes downwards. Although there are fewer men who process fish (220 respondents), they occupy a more lucrative niche (mean income of 637,096 leones versus 287,359 leones [Table 4a], with a median income of 100,000+ leones [Figure 2]), and have less need to access other income.

We are unable to measure gender asset gaps, although we can compute gender earnings gaps, expressing women's incomes as a percentage of men's incomes across the different fishing and side activities (Table 5). In all cases, women earn less than men. While the earnings gap is greatest in the transportation sector, the gap is more pronounced in the [female-dominated] processing sector than the [male-dominated] fishing sector, a finding that concurs with the wider literature on gender and labor market segmentation, which discloses that the gap is more acute in female-concentrated occupations (Janet Norwood 1982; Kasia Jurczak and John Hurley 2008; Ariane Hegewisch and Hannah Liepmann 2010). Nevertheless, as women's participation and monthly earnings for women are markedly higher in fish processing than fishing (see Table 4), there is a strong case for focusing policy on enhancing processing activities and value-added rather than improving women's fishing opportunities.

Table 5 Gender gaps in mean income of women and men in fisher families

<i>Principal fishing activity</i>	<i>Women's income as a percentage of men's income from fishing activity last month</i>	<i>Women's income as a percentage of men's income from non-fishing activities last</i>	<i>Women's income as a percentage of men's income in total last month</i>

		<i>month</i>	
Fish processing	45	73	54
Fishing	65	41	62
Fish transporting	5	4	4

Note: The gender gap ratios are calculated on the basis of the data presented in Table 4. *Source:* World Bank 2010.

Gender relations and resource access within Sierra Leone's fisheries sector

Stereotypical gender roles in Sierra Leone expect women to fulfill reproductive, household management, food provisioning, and nursing tasks, that hinder their ability to go to sea. Hence, gendered social norms, not direct regulatory prohibition, frustrate Sierra Leonean women's access to fisheries resources. As a consequence, revealed ownership (as recorded in the National Frame Surveys) of physical capital is low – women own just 39 vessels out of 744 (0.5 percent) in the Western region, for example – albeit this figure is certainly understated. IMBO/DelPHE field research, for example, shows that women do invest in fishing capital, but ownership of same is masked as in Ghana (Odotei 2003), with usufruct rights invariably surrendered to a male family member, most frequently husband or son. Although such a strategy may appear suboptimal, it did help address the absentee-owner problem, as a number of women boat owners encountered in the IMBO/DelPHE research advised that in their onboard absence it was commonplace for the crew employed to offload part of the catch either at sea or at a nearby beach, returning to the home beach with a fraction of the real catch. If questioned about the low catch the invariable, and unchallengeable, response was that fishing had been bad.

In the Sierra Leone fisheries sector, small-scale processors rely on wood as fuel. This wood is sourced from the local mangroves (40 percent), other trees (30 percent) or fallen branches and other material (7 percent) – with 23 percent reporting they were unsure of the origins of the wood used. Local scarcities of mangrove wood are putting upward pressure on processing costs. Almost 37 percent of the respondents in the World Bank (2010) dataset report that the mangrove forest had reduced in size over the past three years. Mangrove forests are also a breeding and reproduction habitat for shrimp, fish and other marine species (K. Kathirisan and Brian Bingham 2001; Fiona I. Manson, Neil R. Loneragan, Greg A. Skilleter, and Stuart R. Phinn 2005), and mangrove forests reduce shoreline erosion and protect the coast from the devastating effects of tidal bores and tsunamis (Yoshihiro Mazda et al., 2006; Daniel M. Alongi 2008), a role that could become ever more important in the face of climate change and the threat of rising sea-levels (Allison et al. 2009).

As financial capital has historically been in short supply, women have made recourse to *osusu* groups (a common form of microfinance capital in Western Africa) where participants contribute a weekly amount to a communal rotating credit fund that can be accessed by participants in turn or when needed (see FAO [1997], for more details on *osusu* groups in the fisheries sector). Such funds also perform a social role by enhancing women's local support networks. More recently, a number of donor initiatives have sought to increase access to financial capital among women fish processors, with one noteworthy initiative in this regard being the 2002 Artisanal Fisheries Development project (AFDEP) funded by the African Development Bank. This not only offers credit to 3,897 women [56.1 percent of program beneficiaries], but is also re-orienting their lending portfolio toward women

processors/distributors given their greater reliability in repayment terms (Kemoba Dabor, 19th June 2008, cited in DelPHE 2009: 9).

Gender differences prevail between women and men in education. The World Bank dataset provides information on the education of women and men processors and fishers, not on transporters. While literacy levels and educational attainment are low for the sector, women on average are even less educated than men – with only 14 percent of women having undertaken formal schooling compared to almost 22 percent of men (the difference in literacy levels is even more striking) [Table 6]. Whilst this is in part a reflection of the pervasive poverty encountered in the country, the war and a lack of alternative employment options within these communities had reduced the perceived importance of education (PRSP, 2005). Human capital enhancement in the postharvest sector has historically relied more on a “demonstration effect,” rather than any formal schooling provision or continuous fisheries extension program. A case in point was the introduction of safer, more efficient ovens in the 1980s, the government demonstrating the technique, and relying on the fisherwomen to adopt their own volition (Filomina Chioma Steady 1985).

Table 6: Access to Education by Women and Men in the Fisheries Sector in Sierra Leone.

<i>Literacy and Educational Attainment</i>	<i>Percentage of Women</i>	<i>Percentage of Men</i>
<i>Literacy</i>		
Ability to read and write in local language	1.4	4.8
Ability to read and write in English	10.0	19.4

Educational Attainment

Attended formal school	14.0	21.9
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Highest level of schooling attained

- Incomplete primary	4.1	5.8
- Complete primary	4.3	5.0
- Incomplete secondary	3.1	7.1
- Complete secondary	1.3	4.2
- Complete technical/vocational	0.2	0.0
- Incomplete University	0.1	0.0
- Complete University	0.0	0.1

<i>Total number of women/men</i>	N=1,404	N=1,924
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Notes: *The total number of women consists of 1,300 processors plus 104 fishers; educational data of women transporters (n=62) was not available. The total number of men consists of 176 processors and 1,748 fishers; educational data of men transporters (n=34) was not available.

Source: World Bank 2010.

Although the Minister of Marine Fisheries and Marine Resources (MFMR) at the time of this study's gestation was a woman (Afsatu Kabba), women's participation in MFMR structures and decision making was extremely marginal. Of the ninety-one professional staff employed by the Ministry of Marine Resources, just ten were women, and these were primarily involved in

secretarial roles (8), with only one Senior Fisheries Office and one field technician being women. At the local level while women can assume the position of Paramount Chiefs,^{vi} sectoral realities ensure the Master Fisherman and the Harbour Master, who effectively dictate fisheries activities at the community level, are always men due to gendered social norms. In the face of such institutional exclusion, social capital can play an important role in creating a space for women's economic activity with Fish Marketing Associations (FMAs) emerging to complement *osusu* savings groups in most communities.

A noteworthy recent change in local decision making processes relates to the approval of the 2004 Local Government Act (LGA). The LGA promotes the devolution of various state activities, inclusive fisheries, with the newly established local councils (LC), elected in 2008, that were entrusted with managing (licensing artisanal craft and gear, rent extraction, reporting infractions etc.) the country's artisanal fisheries (Andrew Baio 2010). Operationally, local fisheries management is now the remit of local Marine and Fisheries Committees (MFC), although in practice the Council and the Committee Chair (often the same person) co-opt experienced fishermen onto the Committee. Thus, excepting the Port Loko Council where the Konakridee Town Chief is both a woman and is active on the MFC, the new decentralized artisanal fisheries management framework has merely to date reinforced women's marginalization in aquatic resource decision making processes.

CONCLUSION

Climate change is underscoring the vulnerability of millions of small-scale fisherfolk across the world, with “fishers are already being affected by changes that are ultimately driven by rising global atmospheric temperatures” (Allison et al 2009: 174). One of the most vulnerable economies is that of Sierra Leone, ranked seventh most at risk on the vulnerability index constructed by Allison et al. (2009). The country fares particularly badly in terms of its adaptive capacity, measured in terms of human and social capital levels, and the effectiveness of governance structures, where it ranks third least adaptive, hardly surprising given its relatively recent emergence from a particularly brutal and sustained civil war. The loss of (particularly male) life in the conflict, not only increased the incidence of polygamy, but also the importance of women’s incomes in aggregate household revenues. This high vulnerability score, allied to the contribution of fisherwomen incomes to household revenues among the artisanal fishing communities of Sierra Leone, provided a rationale for the study of women’s work and gender relations in the fisheries sector.

Research suggests that in Sierra Leone, as indeed elsewhere in fisheries across the developing world (Akua Britwum 2009), a fairly rigid gendered division of labor exists: where men fish and women process. This division is rooted in social norms that circumscribe the space in which women may operate in small-scale fisheries. Their limited access to human and financial capital and the need to incur additional costs through masking the ownership of fishing vessels further constrains this space. Nevertheless, women have been able to develop livelihood strategies that enhance household income.

However, the livelihoods of women involved in the sector are complex, with fisheries-derived incomes not only being supplemented by alternative employment such as small-scale farming or running a small business, but also by household sharing (at least in part) of resources and incomes. A greater understanding of the (fisher) household economy is thus imperative to not only understand how women combine productive and reproductive tasks in Sierra Leone's fishing communities, but also the extent to which women and men pool resources and income at the household level. Our study shows how although such women (in the main) lack education, access to resources, financial capital and decision-making power, they nevertheless derive, in some instances quite substantive, incomes from fish processing.

Nevertheless, other gender-responsive strategies need to build upon this and first demonstrate the importance of unpaid care work mainly performed by women [this is of particular importance given the high prevalence of HIV/AIDs in fishing communities (Edward H. Allison and Janet A. Seeley 2004)], second recognise women processors specific needs in terms of access to finance and other resources, and third differentiate clearly between public policies that target fishers (who are mainly men) and processors (who are mainly women). For this reason, despite the gender gap being more pronounced within the processing subsector, the higher absolute earnings that are available to women processors (as compared to women fishers) suggests public policies to support women in the sector would be better directed at seeking to enhance processing earnings - rather than augmenting their access to fishing opportunities.

These policies of economic and social support could include (but are not limited to): providing access to financial capital for processing in a timely and opportune manner, introducing alternative employment opportunities during the 'low' fishing season (and combining such opportunities with informal education to enhance community literacy),

promoting the sustainable management of mangrove and fuel wood reserves, building upon existing social capital by providing access to other assets and resources necessary to augment the incomes derived from processing, and addressing the gendered social structures that underscore the problematic relations within the subsector in such a way that constraints and barriers to access and the accumulation of capital are removed for women. For only then will more responsive gender policies have a chance to succeed.^{vii} However, as our research shows, such gender responsive interventions are unlikely to be gender effective interventions at the national level in Sierra Leone and other developing-country fisheries unless a thorough understanding of the local socioeconomic landscape and the accompanying gender and power relations is at hand to inform debate and ensuing policy decisions.

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NOTES

ⁱ Most pertinent was the provision of gender-responsive advisory services and support in identifying and developing new livelihood opportunities for women. The other two investments related to supporting gender-responsive, community-level resource-management bodies and enabling marginalized groups to access new external markets.

ⁱⁱ Sierra Leone also possesses an industrial fishery, comprising forty-three vessels and landing 13,642 tons (around 10 percent of the total national catch) in 2006. However, its contribution to local employment and livelihoods is marginal since more than 70 percent of the industrial catch is transhipped and never lands in Sierra Leone.

ⁱⁱⁱ These respondents worked as (1) fishers (2,010 respondents), (2) processors (1,866), and (3) transporters (510) in the fisheries sector, as well as (4) randomly chosen individuals (both fishers and non-fishers), and (5) households (both fishers and non-fishers). Unfortunately, the dataset did not capture information on time allocated to paid and unpaid labor and reproductive tasks.

^{iv} Given the high proportion of women-headed households in Sierra Leone in the wake of the civil war, men in the wider family network would often contribute fish.

^v Interestingly, Béné and Merten's study casts women as the progenitor in such relationships, a position adopted by Carolyn Lwenya and Ernest Yongo (2012) in a more recent study.

^{vii} The authors are grateful to an anonymous reviewer for making this comment.